Special Issue

Conventional and Micromachined Electromagnetic Levitation Actuators

Message from the Guest Editor

Electromagnetic levitation phenomena have already become a driving force towards creating a new generation of actuators with inherent benefits, such as controllable mechanical friction and considerably extended motional range, thereby yielding actuators with wider operational capabilities, and at the same time, significantly reducing the dissipated energy. These advantages and ongoing miniaturization promise possibilities for creating actuator systems with new functionalities, for instance, comprising of multistable mechanisms, coherent cooperative actuation and demonstratimg a wide range of different operation modes such as linear and angular positioning, bistable linear and angular actuations and the adjustment of stiffness components. This Special Issue aims to consolidate original papers and state-of-the-art reviews with a focus on levitating actuators based on electric, magnetic, inductive, diamagnetic, superconducting, optical and hybrid levitation.

Guest Editor

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About the Journal

Message from the Editorial Board

We are just entering the Next Wave of Technology (NWT) where actuators will play the same role as the computer chip did for computers/social media approximately four decades ago. Just in the U.S., production of $1 trillion year of electromechanical systems (vehicles, orthotics, manufacturing cells, freight trains, aircraft, etc.) will be impacted by the NWT, all driven by actuators. Five key trends can be found for the future perspectives: “Performance to Reliability”, “Hard to Soft”, “Macro to Nano”, “Homo to Hetero” and “Single to Multi functional”. We invite papers that primarily impact these economic sectors; those illustrating basic scientific principles are also welcome.

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